

*Speaker †Corresponding author: jesus.gago@ieo.es

Cross-border assessment of microplastics in seafood and salt

De Witte Bavo * 1, Daphné Deloof , Kris Hostens

1 Flanders Research Institute for Agriculture, Fisheries and Food - Aquatic environment and quality – Ankerstraat 1, 8400 Oostende, Belgium

Presence of microplastics in seafood and salt is already demonstrated within many research projects. Comparing literature data is not always straight forward and regional differences are difficult to assess based on existing data: sample preparation, e.g. gut purification, may be different and analysis methods and quality control measurements are laboratory dependent. It is therefore not clear if consumers of different countries will be exposed to different microplastic concentrations. On demand of the Austrian, Belgian, Danish, Italian and Spanish consumer organization, a comparative study was conducted, analyzing microplastics in different types of mollusks, crustaceans and salts. Microplastics were analyzed by stereomicroscope after KOH- digestion (mollusks/crustaceans), H₂O₂-destruction (salt) or sedimentation within polytungstate solutions (clay and silica-containing salts).

For each matrix, difference was made between fibers (Fig., blue), films (Fig., grey) and spheres (Fig., orange). The relative amount of spheres within salt samples was 32%, which was high compared to molluscs and crustaceans, which only contained 4-5% spheres. This difference may be related to the efficient removal of spheres from the digestive tract of the biota.

Effect of different parameters were investigated. Salt samples were grouped depending on the processing method and/or the package material. Highest values, up to 68.9 ± 26.0 microplastics/100g, were found in "fleur de sel" salts, which are harvested at the water surface. Package material did not significantly increased microplastic concentrations. Mollusks were grouped according to species, with maximum concentrations up to 47.8 ± 17.0 microplastics/100g tissue weight. For crustaceans, difference was made between wild and within aquaculture bred crustaceans and between peeled and non-peeled crustaceans.

The omnipresence of microplastics in salt and seafood items studied in this research, again stresses the need of more detailed investigation on human health effects of microplastics.

Keywords: mollusks, salt, crustaceans, cross, border assessment, European consumer organizations

*Speaker